



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/059,159	01/31/2002	Akihiko Takeo	P 290677 T2TT-01S0822-1	6516
7590 05/03/2005 Phillsbury Winthrop LLP 1600 Tysons Boulevard McLean, VA 22102			EXAMINER DAVIDSON, DAN	
			ART UNIT	PAPER NUMBER

2651

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/059,159

Applicant(s)

TAKEO, AKIHIKO

Examiner

Dan I Davidson

Art Unit

2651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7 and 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5 and 9 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. The amendment filed November 24, 2004 has been received and has been made of record. An Office Action in response to the above amendment follows.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Saito et al (US 6,747,823 B2).

Re claims 1 and 4; AAPA discloses a disk drive (page 1, lines 12-13) comprising: a magnetic head having a write head for writing data on a data recording medium by a perpendicular magnetic recording method and a read head for reading data from the data recording medium (page 2, lines 12-20); and a disk recording medium provided with a plurality of tracks as data regions for storing data written by the write head and a guard band, which is a non-recording region provided between tracks, kept in a DC magnetized state (page 3, lines 4-13).

AAPA does not disclose that the guard band is kept in an AC magnetized state or a random magnetized state. However, AAPA does disclose that the DC magnetized state of the guard band is a result of the initial magnetizing process on the disk (col. 3, lines 4-13). Saito et al teach replacing the conventional DC initial magnetization in the initial magnetizing process with an AC initial magnetization (col. 8, lines 49-54).

Art Unit: 2651

Incorporating this feature in the disk drive of AAPA would yield a guard band kept in an AC magnetized state, and therefore given a proper motivation, the combination of AAPA and Saito et al is proper.

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify AAPA with the teaching of Saito et al drawn to AC initial magnetization instead of DC initial magnetization; motivation being symmetry of a transferred waveform in a servo magnetic transfer for a perpendicular recording medium (Saito et al; col. 4, lines 5-14; col. 9, lines 32-36; col. 1, lines 13-14).

Re claim 2; AAPA discloses that the disk recording medium is a double-layered recording medium having a recording magnetic layer for storing data and a soft magnetic layer interposed between the recording magnetic layer and a substrate (pg. 1, line 23 – pg. 2, line 5).

Re claim 5; AAPA discloses that the read head has a GMR element and reads data recorded by the perpendicular magnetic recording method while it is close to a surface of the disk recording medium (page 3, line 27 – page 4, line 2; the limitation "close to a surface of the disk recording medium" is open-ended and interpreted broadly.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al (US 6,747,823 B2) in view of Applicant's Admitted Prior Art (AAPA).

Saito et al disclose a process of manufacturing a disk drive of a perpendicular magnetic recording type (col. 8, lines 23-25), comprising: recording an AC magnetized pattern at a high frequency or recording a random magnetized pattern on an overall

Art Unit: 2651

surface of the disk recording medium (col. 7, lines 44-45; col. 8, lines 49-54); recording a servo signal in a predetermined servo area of the overall surface of the disk recording medium (col. 9, lines 26-31).

Saito et al do not disclose forming a plurality of tracks on the overall surface of the disk recording medium except for the servo area. AAPA teaches this (page 3, lines 7-10). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to form tracks on the surface in Saito et al; motivation being recording data.

Saito et al further do not disclose a non-recording region provided between the tracks. AAPA teaches this (page 3, lines 10-13). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to maintain non-recording regions between the tracks in Saito et al; motivation being less interference when reproducing information. It is implicit in the disclosure of Saito et al providing for recording an AC magnetized pattern on an overall surface of the recording medium that the non-recording region taught by AAPA would be an AC magnetized pattern at a high frequency.

Allowable Subject Matter

5. Claim 7 is allowed over the prior art of record.

Re claim 7; the prior art of record, and in particular the combination of AAPA and Saito et al, fails to teach or suggest that the recording step for recording an AC magnetized pattern at a high frequency or a random magnetized pattern is performed

Art Unit: 2651

with respect to the overall surface of the disk recording medium except for the predetermined servo area.

6. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Re claim 3; the prior art of record, and in particular the combination of AAPA and Saito et al, fails to teach or suggest that the non-recording region of the disk recording medium is kept in a state where an AC magnetized pattern is recorded at a frequency equal to or higher than a maximum frequency of a signal magnetic field recorded in the tracks.

Response to Arguments

7. Applicant's arguments filed November 24, 2004 have been fully considered but they are not persuasive.

Applicant argues that neither AAPA nor Saito et al disclose a disk recording medium provided with a guard band between tracks kept in an AC magnetized state. Although this is true, the teaching of Saito that initial magnetization is done using AC magnetization in combination with AAPA's disclosure providing for guard bands having the same magnetization as the initial magnetization yields the result of Applicant's invention, and thus the combination of AAPA and Saito et al is proper.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2651

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan I Davidson whose telephone number is (571) 272-7552. The examiner can normally be reached on Mondays, Tuesdays, and Thursdays from 8:30AM to 5:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R Hudspeth, can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/059,159

Page 7

Art Unit: 2651

DID

Dan I Davidson

April 26, 2005



**DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600**